

18(5), 25(1)

AUTHOR: Khenin, S.G., Engineer

SOV/135-59-8-12/24

TITLE: Spot-Welding Tools With Flats of High-Speed Cutting Steel

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 8, pp 37-38 (USSR)

ABSTRACT: The manufacture of cutting tools with flats of high-speed steel is very common in many factories. In most cases the flats are fastened by soldering. Where the flats are fixed by contact welding, universal electrodes or a bevelled upper electrode are usually taken. This is limiting the nomenclature of the tool with the welded flats. The variety of types and dimensions of the cutting tool makes it necessary to develop a special technological equipment. Such a work was undertaken by the VPTI in the Kolomna Diesel-Locomotive plant imeni Kuybyshev by the engineer A.B. Seregin and the technician V.I. Romanov under the supervision of the author. The flats were welded with the spot welder type MTP-75-9. According to the section of the welded parts the flats are welded with or without chucking the handle or body of the tool in a fixture.

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Spot-Welding Tools With Flats of High-Speed  
Cutting Steel

This assures the necessary output of work pieces. In all cases a powder layer with a thickness up to 1 mm was distributed between the holder and the flats. This layer consisted of crushed steel wool and 10% of dehydrated borax. The granulation of the powder was between 0.5 and 0.7 mm. The welding elements were preheated by current impulses with a duration of 0.5-1.0 sec until drops of molten powder showed on the joints between the flat and the holder. After the welding the tool was immediately put into a furnace. The subsequent heat treatment of the tool assures a hardness up to 63-65 R<sub>c</sub>, which means that it exceeds the hardness of a soldered flat. The tool with the welded flats works more reliable under heavy conditions. The different cutting steels with welded flats passed the laboratory and workshop tests in the Kolomna plant with good results. A ball-shaped fixture is used in welding a non-fixed tool. When the work is very intensive, an additional cooling is installed on the lower electrode in form of a small tank with

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running water. In the course of the studies the relation between the basic parameters of the welding limit and the area of the welded flat was determined. The equipment which was developed permits to extend considerably the nomenclature of a normal and special tool with welded flats. There are 2 diagrams, 1 photograph and 3 graphs.

ASSOCIATION: VPTI tyazhelogo mashinostroyeniya (VPTI for Heavy  
Machine Construction)

Card 3/3

KHENKIN, A., teknikmekhanik

Who has to service collective farms and state farms?  
Avt.transp. 38 no.8:51 Ag '60. (MIRA 13:8)  
(Transportation, Automotive)

AFANAS'YEV, A.N., kand.tekhn.nauk; BASOV, N.I., kand.tekhn.nauk; BELOVITSKIY, A.A., inzh.; VESLOVSKIY, V.S., doktor tekhn.nauk, prof.; GORELIK, B.I., kand.tekhn.nauk; DOROGENKOV, I.M., inzh.; ZAK, D.L., inzh.; IVOMIN, V.I., inzh. [deceased]; KLINOV, I.Ya., doktor tekhn.nauk, prof.; LEVIN, A.N., doktor tekhn.nauk, prof.; LEVIN, S.N., kand.tekhn.nauk; LEPEZOV, V.A., kand.tekhn.nauk; LEONT'YEV, N.L., doktor tekhn.nauk, prof.; LOKHINA, P.I., kand.tekhn.nauk; MATVEIEVA, L.V., inzh.; MIKHAILOV, A.N., doktor tekhn.nauk, prof.; MUDRIK, Kh.I., kand.tekhn.nauk; PERLIN, S.M., inzh.; SALAZKIN, K.A., kand.tekhn.nauk; SIL'VESTROVICH, S.I., kand.tekhn.nauk; SOKOLOVSKAYA, S.I., kand.tekhn.nauk; KHENKIN, A.A., inzh.; KHUKHRYANSKIY, P.N., doktor tekhn.nauk, prof.; SHTYDELEV, I.Yu., kand.tekhn.nauk; YASHUNSKAYA, F.I., kand.tekhn.nauk; POGODIN-ALEKSEYEV, G.I., doktor tekhn.nauk, prof., red.; RYBAKOVA, V.I., inzh., red.izd-va; SOKOLOVA, T.F., tekhn.red.

[Handbook on materials used in the manufacture of machinery] Spravochnik po mashinostroitel'nym materialam; v chetyrekh tomakh. Pod red.G.I.Pogodina-Alekseeva. Moskva, Gos.sauchno-tekhn.izd-vo mashinostroitel'stva. Vol.4. [Nonmetallic materials] Ne metallicheskie materialy. Red.toma A.N.Levin. 1960. 723 p.

(MIRA 13:7)

(Machinery industry)

(Nonmetallic materials)

KHENKIN, A.A., stividor-nastavnik; SHVARTS, S.S., inzh.

Loading large-size cargo on ships in the Odessa harbor. Biul.  
tekhn.-ekon.inform. Tekh. upr. Min. mor. flota 7 no.5:68-75  
'62. (MIRA 16:3)  
(Odessa--Cargo handling)

KHENKIN, A.L., inzh. (Zaporozh'ye); BORYU, N.V., inzh. (Zaporozh'ye)

Thermometric technique for measuring local power losses in  
electric transformers. Elektrichestvo no.5:64-66 My '63.  
(MIRA 16:7)

(Electric transformers—Measurement)

XHENKIN, D.Y. [Khenkin, D.I.]

The OGB-10 homogenizer. Khar.prom. no.259 Ap-Je '62.  
(MIRA 1519)  
(Odessa—Milk plants—Equipment and supplies)  
(Homogenization)

KHELEMSKIY, A.Ya.; KHENKIN, G.M.

Imbedding of compacts into ellipsoids. Vest. Mosk. un. Ser. 1:  
Mat., mekh. 18 no.2:3-12 Mr-Ap '63. (MIRA 16:6)

1. Kafedra teorii funktsiy i funktsional'nogo analiza Moskovskogo  
universiteta.  
(Hilbert space) (Topology)

KHENKIN, G.M.

Embedding a space of s-smooth functions of n variables  
into a space of sufficiently smooth functions of fewer  
variables. Dokl. AN SSSR 153 no.1:57-60 N '63.

(MIRA 17:1)

1. Predstavлено академиком А.Н. Колмогоровым.

KHENKIN, G.M.

Stability of absolute bases in a uniformly convex space. Usp.  
mat. nauk 18 no.6:219-223 '63. (MIR 17:3)

J 2090.65 EWT(d) LIP(c)/ESD(dp)/RAEM(t)  
ACCESSION NR: AP4048313

8/0027/64/157/002/0288/0290

8

AUTHOR: Khenkin, G. M.

7

TITLE: Linear superpositions of continuously differentiable functions.

SOURCE: AN SSSR. Doklady\*, v. 157, no. 2, 1964, 288-290

TOPIC TAGS: function, continuously differentiable function, linear superposition, arbitrary continuous function, continuous function

ABSTRACT: This paper is devoted to a demonstration of the following two theorems:

(1) For all functions  $p_m(x_1, x_2)$  continuous throughout the plane, all functions  $q_m(x_1, x_2)$  ( $m = 1, 2, \dots, N$ ) continuously differentiable throughout the plane, and the entire region D of the plane of variables  $x_1, x_2$ , the set of superpositions of form

$$\sum_{m=1}^N p_m(x_1, x_2) f_m(q_m(x_1, x_2)),$$

where  $\{f_m(t)\}$  are arbitrary continuous functions, is nowhere dense in the space of all functions which are continuous in region D with uniform convergence.

Ca: Card 1/2

CHERNIKH, G.M.

Linear superpositions of continuously differentiable functions.  
Dokl. AN SSSR 157 no. 2:288-290 Jl '64. (MIR 17:7)

I. Moskovskiy gosudarstvennyj universitet imeni Lomonosova.  
Predstavлено академиком A.N.Kolmogorovym.

KHENKIN, G.N.

32

PHASE I BOOK EXPLOITATION

SOV/5925

Rokotyan, Ye. S., Doctor of Technical Sciences, ed.  
Prokatnoye proizvodstvo; spravochnik (Rolling Industry; Handbook) v. 1. Moscow,  
Metallurgizdat, 1962. 743 p. Errata slip inserted. 9250 copies printed.

Authors of this volume: B. S. Azarenko, Candidate of Technical Sciences; V. D. Afanasyev, Candidate of Technical Sciences; M. Ya. Brovman, Engineer; M. P. Vavilov, Engineer; A. B. Vernik, Engineer; K. A. Golubkov, Engineer; S. I. Gubkin, Academician, Academy of Sciences USSR; A. Ye. Gurovich, Engineer; V. I. Davydov, Candidate of Technical Sciences; V. G. Drozd, Engineer; N. F. Ternolayev, Engineer; Ye. A. Zhukovich-Stopka, Engineer; N. M. Kirilin, Candidate of Technical Sciences; M. V. Kovynov, Engineer; A. M. Kogos, Engineer; A. A. Korolev, Professor; M. Ye. Kugayenko, Engineer; A. V. Laskin, Engineer; B. A. Lovitanskiy, Engineer; V. M. Lugovskoy, Engineer; I. M. Mayrovich, Candidate of Technical Sciences; M. S. Otscharov, Engineer; V. I. Pasternak, Engineer; I. L. Perlin, Doctor of Technical Sciences; I. S. Pobadin, Candidate of Technical Sciences; Ye. S. Rokotyan, Doctor of Technical Sciences; M. M. Safryan, Candidate of Technical Sciences; V. V. Smirnov, Candidate of Technical Sciences; V. S. Smirnov, Corresponding Member, Academy of Sciences USSR; O. P. Sokolovskiy,

Card 1/10

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Rolling Industry; Handbook

SOV/5985

Engineer; O. P. Solov'yev, Engineer; M. A. Sidorkevich, Engineer; Ye. M. Tret'yakov, Engineer; I. S. Trishovskiy, Candidate of Technical Sciences; G. N. Khenkin, Engineer; and A. I. Tsolikov, Corresponding Member, Academy of Sciences USSR. Introduction: A. I. Tsolikov, Corresponding Member, Academy of Sciences USSR; Ye. S. Nokotyan, Doctor of Technical Sciences; and L. S. Al'chevskiy, Candidate of Technical Sciences.

Eds. of Publishing House: V. M. Gorobinchenko, R. M. Golubchik, and V. A. Rymov;  
Tech. Ed.: L. V. Dobuzhinskaya.

PURPOSE: This handbook is intended for technical personnel of metallurgical and machine-building plants, scientific research institutes, and planning and design organizations. It may also be useful to students at schools of higher education.

COVERAGE: The fundamentals of plastic deformation of metals are discussed along with the theory of rolling and drawing. Methods of determining the power consumption and the forces in rolling with plane surface or grooved rolls are .

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## Rolling Industry; Handbook

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AZARENKO, B.S., kand. tekhn. nauk; AFANAS'YEV, V.D., kand. tekhn. nauk; BROVMAN, M.Ya., inzh.; VAVILOV, M.P., inzh.; VERNIK, A.B., inzh.; GOLUBEKOV, K.A.; GUBKIN, S.I., akademik [deceased]; GUREVICH, A.Ye., inzh.; DAVYDOV, V.I., kand. tekhn. nauk; DROZD, V.G., inzh.; YERMOLAYEV, N.F., inzh.; ZHUKEVICH-STOSHA, Ye.A., inzh.; KIRILIN, N.M., kand. tekhn. nauk; KUVINEV, M.V., inzh.; KOGOS, A.M., inzh.; KOROLEV, A.A., prof.; KUGAYENKO, M.Ye., inzh.; LASKIN, A.V., inzh.; LEVITANSKIY, B.A., inzh.; LUGOVSKIY, V.M., inzh.; MEYEROVICH, I.M., kand. tekhn. nauk; OVCHAROV, M.S., inzh.; PASTERNAK, V.I., inzh.; PERLIN, I.L., doktor tekhn. nauk; POBEDIN, I.S., kand. tekhn. nauk; ROKOTYAN, Ye.S., doktor tekhn. nauk; SAF'YAN, M.M., kand. tekhn. nauk; SMIRNOV, V.V., kand. tekhn. nauk; SMIRNOV, V.S.; SOKOLOVSKIY, O.P., inzh.; SOLOV'YEV, O.P., inzh.; SIDORKEVICH, M.A., inzh.; TIET'YAKOV, Ye.M., inzh.; TRISHEVSKIY, I.S., kand. tekhn. nauk; KHENKIN, G.N., inzh.; TSELIKOV, A.I.; GOROBINCHENKO, V.M., red. izd-va; GOLUBCHIK, R.M., red. izd-va; RYMOV, V.A., red. izd-va; DOBUZHINSKAYA, L.V., tekhn. red.

[Rolling; a handbook] Prokatnoe proizvodstvo; spravochnik. Pod red. E.S.Rokotiana. Moskva, Metallurgizdat. Vol.1. 1962. 743 p.

(MIRA 15:4)

1. Akademiya nauk BSSR (for Gubkin). 2. Chlen-korrespondent Akademii nauk SSSR (for Smirnov, Tselikov).

(Rolling (Metalwor))—Handbooks, manuals, etc.)

KHENKIN, M. L.

22496

Khenkin, M. L. Magnitnyye Piity S Postoyannymi Magnitami Dlya  
Shlifovalnykh Stankov (Srimech Red) Stanki I Instrument, 1949  
Nol 7 S 23-25.

SO:

Letopis' No 30, 1949

"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721930010-8

USSR.

Experimental  
Techniques of Casting by  
Knobell  
General

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721930010-8"

"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721930010-8

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721930010-8"

KHENKIN, M. L., ZEMMERING, M. N., and KRESHCHANSKIY, N. S.

"Means of Improving the Mechanical Properties of Steel Castings." From the book, "Heat Treatment and Properties of Cast Steel." edited by N. S. Kreshchenovskiy, Mashgiz, Moscow 1955.

✓ Feeding Steel Castings Produced by the East African FMS  
M. J. K. Enku  
Gumoni. This is a secret document.  
Date of creation: 09/17/2001  
File number: 00513R000721930010-8  
Signature: [Signature]  
Approved for release: 09/17/2001

## PHASE I BOOK EXPLOITATION 903

Khenkin, Mark L'vovich

Uluchsheniye mekhanicheskikh svoystv i povysheniye plotnosti stal'nykh  
otlivok (Improving the Mechanical Properties and Increasing the  
Density of Steel Castings). Leningrad, Sudpromgiz, 1957. 109 p.  
3,000 copies printed.

Scientific Ed: Gulyayev, B.B.; Ed.: Isayev, V.A.; Tech. Ed.:  
Frumkin, P.S.

PURPOSE: This book is intended for engineers and technicians, both in  
industry and at research institutes, who are working in the field of  
steel castings.

COVERAGE: The book is concerned with the improvement of the mechanical  
properties of steel investment castings through the use of alloying  
elements and more rational methods of feeding the metal into the  
mold. Results are given of investigations to determine the effect  
of various factors on the properties of the castings, such as heat-

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Improving APPROVED FOR RELEASE: 09/17/2001.) CIA-RDP86-00513R000721930010-8

ing the molds, manner of feeding metal to the molds, heat treatment,  
and alloying with certain elements. Recommendations are made on the  
basis of experimental and production data. No personalities are  
mentioned. There are 63 references, of which 45 are Soviet (includ-  
ing 1 translation), 15 English, and 2 German.

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## Improving the Mechanical Properties (Cont.) 903

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AVAILABLE: Library of Congress (TS320.K5)

GO/wh1  
12-11-58

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KHENKIN, M. L., Cand. Tech. Sci.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000721930010-

"Mechanical Properties of Investment Castings," Metody polucheniya otlivok povyshennoy tochnosti (Methods of Making High-Precision Castings), Moscow, Mashgiz, 1958. 140 p.

PURPOSE: This book is intended for engineers and technicians at plants and institutes, as well as in research and planning organizations in all branches of the machine-building industry.

*KHENKIN, M.*

## PHASE I BOOK EXPLOITATION

SOV/5976

Shklenik, Ya. I., A. V. Baranov, V. N. Ivanov, S. A. Kazenov, D. S. Kurchan,  
M. N. Lyanashchenko, R. A. Marulidi, G. K. Militsin, V. A. Ozerov, A. I.  
Sitnichenko, M. Ya. Telis, and M. L. Khenkin

Lit'ye po vyplovlyayemym modeljam (Investment Casting) [Leningrad] Mashgiz  
[1961] 455 p. (Series: Inzhenernyye monografii po liteynomu proizvodstvu)  
Errata slip inserted. 8000 copies printed.

Eds. (Title page): Ya. I. Shklenik and V. A. Ozerova; Reviewer: N. D. Titov,  
Candidate of Technical Sciences, and A. I. Klauzen, Engineer; Ed.: Yu. L. Markin,  
Engineer; Tech. Eds.: A. Ya. Tikhonov, Z. I. Chornova and V. D. El'kind; Man-  
aging Ed. for Literature on Hot-Working of Metals: S. Ya. Colvin, Engineer.

PURPOSE: This book is intended for engineering and technical personnel in the  
metalworking industry and for scientific research workers. It may also be used  
by students specializing in foundry work.

COVERAGE: The book reviews the most important problems in investment casting.  
Among the topics considered are the following: mechanical properties of castings;

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## Investment Casting

SOV/5976

the manufacture of castings; precision surface quality; materials and methods of making patterns and molds; the melting of metals and alloys; pouring, cleaning, heat treatment, and inspection of castings; economic aspects in the production of castings; organization of production; and modern concepts relating to processes taking place in the manufacture of investment castings. No personalities are mentioned. There are 180 references, mostly Soviet.

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KHENKIN, M.L.; BIZIN, A.A.; OBOLENSKIY, V.I.; ABRAMOV, V.I.

Raising the precision of investment castings in small-lot manufacture. Lit. proizv. no.6:3-6 Je '64.

(MIRA 18:5)

ACCESSION NR: AP4022458

S/0128/64/000/003/0027/0031

AUTHORS: Khenkin, M. L. (Candidate of technical sciences); Levina, N. K. (Engineer); Spektorova, S. I. (Engineer); Abramov, V. I. (Engineer); Grishchenko, V. G. (Engineer)

TITLE: Study of some foundry alloys used in the production of high precision details

SOURCE: Liteynoye proizvodstvo, no. 3, 1964, 27-31

TOPIC TAGS: foundry alloy, high-precision machine detail, machine detail casting, AL2 alloy, AL9 alloy, VL15-1 alloy, ML5 magnesium alloy, steel, 35L steel, IKV vertical optimeter, ML10 magnesium alloy, dimensional stability

ABSTRACT: Measuring high-precision machine details showed that their dimensions changed with the progress of relaxation processes and of structural transformations in metals. In general, such machine details operate in the temperature range of -30°C to 120°C and under stresses not exceeding several kg/mm<sup>2</sup>. The conditions necessary for the required dimensional stability of alloys AL2, AL9, VL15-1, ML5 and steel 35L were determined. All the samples were treated thermally, and their

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ACCESSION NR: AP4022458

deformation, stress relaxation, and the residual stress level were studied. The deformation was measured by a vertical IKV optimeter. It was established that the alloy VII5-1 had the greatest relaxation stability among the aluminum alloys and that the M110 was the best in this respect among the magnesium alloys. A repeated heating-cooling process increased the dimensional stability of the samples, and the internal hardening (produced in the course of plastic deformation) increased the relaxation stability of alloys during the cyclic thermal treatment. It is concluded that the process to be used in securing dimensional stability must produce a stable structure and a proper state of relaxation not only in the separate details of an instrument but also in the assemblies of such details. Since additional stresses may be produced in the course of assembling, whole assemblies must undergo an additional repeated thermal treatment. This treatment should involve at least three heating-chilling cycles with a lower temperature range of -40 to -70C and an upper of 80-150C. Orig. art. has: 4 tables and 13 figures.

ASSOCIATION: none

SUBMITTED: CO

DATE ACQ: 10Apr64

ENCL: 00

SUB CODE: ML

NO REF Sov: 005

OTHER: 000

Card 2/2

KHENKIN, M.L., kand. tekhn. nauk; NIKONOROVA, A.I., kand. tekhn. nauk;  
GLADYSHEV, S.A., inzh.; BOLOTTOVA, Ye.P., inzh.; SOBOLEVA, N.P.,  
inzh.

Stainless steel for thin-walled castings. Lit. proizv. no.11:  
3-5 N '65.  
(MIRA 18:12)

ZIT'ya 'EVA(d)/T/EWP(t) TIP/c' JD/FW

AUTHOR: Khenkin, M. I. (Candidate of technical sciences); Nikonova, A. I.

Editor: Khokhlov, G. N. (Candidate of technical sciences); Chernov, V. V. (Candidate of technical sciences)

ORG: none

TITLE: Stainless steel for thin-walled castings

SOURCE: Liteynoye proizvodstvo, no. 11, 1965, 3-5

TOPIC TAGS: metal casting, martensite steel, copper, corrosion resistance, tempering, austenitic steel, steel, stainless steel/  $\phi$ Kh15N4D3L stainless steel, 35L steel

ABSTRACT: The steel used for thin-walled and intricate castings of parts of precision machinery and devices must display a high resistance to atmospheric corrosion without requiring a protective coating, a satisfactory fluidity, a high dimensional stability, adequate physico-mechanical properties, and a satisfactory machinability. Of the standard stainless steels not one satisfies the entire set of these requirements. Cr-Ni austenitic steels have a high corrosion resistance but a low fluidity, while martensitic-class steels have a low corrosion resistance but an insufficient fluidity. Hence it is normally necessary to employ for these purposes 35L steel despite the highly undesirable necessity of coating it electrochemically with zinc. Of the elements

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UDC: 621.74.045:669.14.018.8

L 2603-66

ACC. NR. AP6008863

2

enhancing the fluidity of stainless steels, Cu is the most effective. In this connection, six melts of the newly developed OKh15N4D3L martensitic stainless steel (up to 0.08% C, 0.8% Si, 0.7% Mn, 14.5-17% Cr, 3-4% Ni and 3-4% Cu) were tested for fluidity, as a function of temperature and shape of metal. Tests of various intricate thin-walled (1.5 mm thick) castings confirmed the definitely satisfactory casting properties of this steel -- high fluidity and absence of hot cracking. Since steels used for thin-walled and precision castings also must satisfy high requirements with respect to corrosion resistance in non-coated state, high dimensional stability, and weldability, these properties were also investigated for OKh15N4D3L steel as compared to 35L steel. Findings: the dimensional stability of 35L steel is such that after air quenching from 1020°C, 2-hr treatment which will stabilize it at -70°C and 2-hr tempering at 600°C, this steel remains stable in time even in the presence of temperature fluctuations of from +150°C to -40°C. Compared with 35L steel, OKh15N4D3L steel displays superior strength properties (1.5-2 times higher) as well as superior corrosion resistance and superior machinability (30-40% higher). Thus OKh15N4D3L steel may be accepted as a replacement for 35L steel, which previously had to be used for this purpose. Orig. art. has: 6 figures, 4 tables.

SUBM DATE: none / ORIG REF: 4

Card

2/2 PB

ACC NR: AP7002740

SOURCE CODE: UR/0126/66/022/006/0896/0903

AUTHOR: Khenkin, M. L.; Lokshin, I. Kh.; Levina, N. K.; Sidokhin, Ye. F.  
Simeonov, S.L.; Minina, L.V.; Pavlikova, Ye.V.

ORG: none

TITLE: Effect of cyclic heat treatment on the properties and structure  
of alloys containing phases with different expansion coefficients

SOURCE: Fizika metallov i metallovedeniye v. 22, no. 6, 1966, 896-903

TOPIC TAGS: INTERNAL STRESS, COOLING, ALUMINUM BASE ALLOY,  
SILICON CONTAINING alloy, magnesium containing alloy, alloy  
heat treatment, cyclic heat treatment, ~~mechanical property, alloy~~  
stress relaxation, cyclic heat treatment effect/AL2 alloy, AL9T2 ~~effect~~  
ALLOY

ABSTRACT: An investigation has been made of the effect of cyclic heat treatment (CHT) on the internal stresses and relaxation characteristics of alloys containing phases with different expansion coefficients. Each cycle in CHT consisted of cooling to subzero temperatures (-40 to -190), holding for 10—120 min, followed by heating to relatively low temperatures (up to 150°C) and holding at these temperatures for 15—240 min. It was found that CHT reduced internal stresses and increased the relaxation strength in all investigated alloys. The greatest decrease in internal stresses was observed in AL2 (12.1% Si) and AL9T2 (7% Si, 0.3% Mg) aluminum alloys. The CHT had no effect on the tensile and yield

UDC: 669.017: [548.735+620.187]

Card 1/2

ACC NR: AP7002740

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000721930010-

strengths and the ductility of Al-Si alloys, but it increased the elastic limit by 20—50% and the relaxation strength of AL2 alloy by 300% in short-time and prolonged tests. Thus, CHT effectively inhibited the negative effect of the increased silicon content, thereby increasing the strength characteristics, but lowers the relaxation strength of Al-Si alloys. The effect of CHT on the relaxation strength decreases as the upper temperature of the cycle increases above 150°C, and approaches zero when this temperature is increased to 280°C. The first three cycles of CHT are the most effective regardless of the holding time at the extreme temperatures of the cycle. The same effect of CHT was observed in other alloys consisting of the phases with different expansion coefficients, e.g., Al-Ge, and sintered W-Ni-Fe and W-Ni-Cu alloys. In such alloys, CHT promoted formation of a stable dislocation structure with minimum micro-and macrostresses, which increased the elastic limit and relaxation strength. Orig. art. has: 5 figures and 3 tables.

SUB CODE: 13, 11/ SUBM DATE: 10Sep65/ ORIG REF: 008/ OTH REF: 001

Card 2/2

KHEIKIN, M. O.,

"Some Problems of Improving the Mechanical Properties and Feeding of Medium Carbon Steel Castings into Molds Containing Fusible Models." (Dissertation for Degree of Candidate for Technical Sciences) Min Higher Education USSR, Moscow Automechanical Inst, Moscow, 1955

SO: M-1036 28 Mar 56

KHNEKIN, N.

Putting into practice the experience of the participants in the  
All-Union Agricultural Exhibition. Nauka i pered. op. v sel'khoz.  
18 no. 2123-27 F '58.  
(MIRA 11:3)

1. Predsedatel' kolkhosa "Krasnyy partisan," Budnyanskogo rayona,  
Smolenskoy oblasti.  
(Agriculture)

KHENKIN, V.L., professor

Injuries of the heart. Khirurgiia, no.9:68-69 8 '55. (MLRA 9:2)

1. Iz kafedry gospital'noy khirurgii (zav. prof. V.L. Khenkin)  
meditsinskogo fakul'teta Uzhgorodskogo universiteta i Uzhgorodskoy  
oblastnoy klinicheskoy bol'nitay (glavnnyy vrach G.S. Lutsenko)  
(HEART, wounds and injuries  
surg.)  
(WOUNDS AND INJURIES  
heart, surg.)

KHENKIN, V.L., prof.; KLEPKO, M., tekhn. red.

[Essays on lung resections in tuberculosis] Ocherki ob operatsii  
legkikh po povodu tuberkuleza. Chernovtsy, Chernovitskii gos.  
med. inst, 1959. 192 p. (MIRA 15:6)  
(TUBERCULOSIS) (LUNGS—SURGERY)

KHENKIN, V.L., prof.; BORITKESMAN, S.G.

Case of surgical treatment of lymphogranulomatosis of the sternum.  
Nov. khir. arkh. no.2:112-113 Mr-Ap '60. (MIRA 14:11)

1. Kafedra gospital'noy khirurgii (zav. - prof. V.L.Khenkin)  
Chernovitskogo meditsinskogo instituta i 5-y gorodskaya bol'nitsa.  
(HODGKIN'S DISEASE) (STERNUM—SURGERY)

KHENKIN, V.L., prof.

Significance of a novocaine block of the aortic-cardiac plexuses in  
the treatment of stenocardia. Vrach. delo no.6:39-42 Je '61.  
(MIRA 15:1)

1. Kafedra gospital'noy khirurgii (zaveduyushchiy - prof. V.L.Khenkin)  
Chernovitskogo meditsinskogo instituta.  
(ANGINA PECTORIS) (NOVOCAINE)

KHENKIN, Ye.M.

Modernization of equipment and apparatus for the production of  
lubricating greases. Froizv. smaz. mat. no. 6/8;138-143 '61.  
(MIRA 14:8)

1. Trest "Neftemaslozavody".  
(Lubrication and lubricants) (Chemical apparatus)

KHENKINA, A.M.

Seismic prospecting data on the tectonics of the sediments underlying the producing formation in the Apsheron petroliferous province. Azerb. neft. khoz. 40 no.6:4-7 Je '61. (MIRA 14:8) (Apsheron Peninsula--Petroleum geology) (Seismic prospecting)

KHENKINA, A.M.

Seismic prospecting for oil- and gas-bearing structures in  
Azerbaijan. Biul.nauch.-tekhn.inform.VIMS no.1:35-39 '60.  
(MIRA 15:5)

1. Kontora morskoy geofizicheskoy razvedki.  
(Azerbaijan—Petroleum geology)  
(Azerbaijan—Gas, Natural—Geology)  
(Seismic prospecting)

KH. G. KHENKINA

"Development of the Technology of Coating Planar Cathodes and Procedures  
for their Control with an Accuracy of plus or minus 3 Microns" From Annotations of  
Works Completed at the State Union Sci. Res. Inst., Min. of Radio Engineering Ind.  
in 1955.

So: B-3,080,964

SEMEIVENKO, D.K.; KHENKINA, S.A.

Effect of certain factors on losses of input air and gas at the  
Moscow Basin "Podzemnye gaz" Station. Podzem. gaz. ugl. no.3:20-23  
'58. (MIRA 11:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut Podzemnye gaz.  
(Moscow Basin--Coal gasification, Underground)

SEMENENKO, D.K.; KHENKINA, S.A.

Effect of hydromechanical factors and structural characteristics  
of underground gas producers on the losses of blow and gas.  
Podzem.gaz.ugl. no.2:26-29 '59. (MIRA 12:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektnyy institut  
podzemnoy gazifikatsii ugley.  
(Coal gasification, Underground)

KASHKIN, A.A.; SEMENENKO, D.K.; KHENKINA, S.A.

Gas losses at the south Abinskiy underground gasification station. Nauch. trudy VNII Podzemgaza no. 8:12-21 '62.  
(MIRA 16:6)

1. Yuzhno-Abinskaya stantsiya "Podzemgaz" i laboratoriya gornogeologicheskaya Vsesoyuznogo nauchno-issledovatel'skogo instituta podzemnoy gazifikatsii ugley.  
(Abinskiy region--Coal gasification, Underground)

SEMENENKO, D.E., kand.tekhn.nauk; KHENKINA, S.A.; SHUBIN, Ya.V.

Computing the gas losses in the joint operation of several under-ground gas producers. Trudy VNIIPodzemgaza no.13:17-21 '65.  
(NTRA 18:8)

1. Laboratoriya gornogeologicheskaya Vsesoyuznogo nauchno-issledovatel'skogo instituta podzemnoy gazifikatsii ugley.

KHENKINA, YE. V.

USSR/Medicine - Infectious Diseases

May/Jun 52

"Dysentery in Newborn Children," Ye. V. Khenkina,  
L'vov Fifth City Hosp of Contagious Diseases

"Pediatriya" No 3, pp 35-38

PA 228T31  
States that observations refute the idea that infants up to one mo of age are not susceptible to dysenteric infection. Out of 67 ill infants, one became infected in the 2d wk, 3 in the 3d wk, and 63 in the 4th wk of life. The disease takes a severe course in infants: there is extreme loss of wt, multiplicity of complications and tendency of

228T31

acute forms of the disease to become lingering. In the great majority of cases dysentery commences rapidly, with high temp and early onset of a colitic syndrome. States that anatomical changes in intestines, however, are insignificant and no parallelism exists between severeness of the clinical course and the character of morphological changes in the intestines.

228T31

KHIEKINA, E.V.

Synthomycin therapy of acute dysentery. Pediatrilia no.2:45-47  
(MLRA 7:6)  
Mr-Ap '54.

1. Iz Pervoy detskoy gorodskoy infektsionnoy bol'nitsy L'vova  
(Glavnnyy vrach Ye. G. Krikunova)
- (DYSENTERY, in infant and child,  
\*ther., chloramphenicol)  
(CHLORAMPHENICOL, therapeutic use,  
\*dysentery in inf. & child.)

KORZHINSKIY, S.I. [Korzhyns'kyi, S.I.], kand.med.nauk; KHENKINA, Ye.V.  
[Khenkina, YE.V.], kand.med.nauk; KRIKUNOVA, K.G. [Krykunova, K.H.]

Clinical and epidemiological analysis of the relapsing course of  
dysentery in younger children. Ped., akush. i gin. 19 no.3:30 '57.  
(MIRA 13:1)

1. Klinika detskikh bolezney (zav. - prof. S.I. Ignatov) L'vovskogo  
meditsinskogo instituta (dir. - prof. L.M. Kuz'menko) I-ya detskaya  
infektsionnaya bol'nitsa (glavnnyy vrach - K.G. Krikunova).  
(DYSENTERY)

DAVYDOVA, I.S.; KHENKINA, Ye.V.

Study of the reaction to and the immunological and epidemiological  
efficacy of pertussis-diphtheria vaccine. Zhur.mikrobiol.epid.i  
immun. 31 no.8:61-64 Ag '60. (MIRA 14:6)

1. Iz L'vovskogo instituta epidemiologii, mikrobiologii i gigiyeny  
i L'vovskogo instituta okhrany materinstva i detstva.  
(WHOOPING COUGH) (DIPHTHERIA)

L 04242-67

ACC NR: AR6015953

SOURCE CODE: UR/0299/65/000/023/R048/R048

AUTHORS: Lebnar, Z.; Khennberger, T.

TITLE: Modeling of optical organs and of perception

SOURCE: Ref. zh. Biologiya, Abs. 12R313

REF SOURCE: Sb. Probl. bioniki. M., Mir, 1965, 84

TOPIC TAGS: biology, vision, eye, optic model, anatomic model, perception

ABSTRACT: A modernized model of an artificial retina is described. The model contains three layers of active electronic elements working in parallel and two synaptic fields interconnecting these layers. All the conversions in the new model are produced by the cutoff elements. This model represents an effort to approach the process of reproducing actual receptive fields and those temporary relationships which are introduced in the work of Maturan ("J. Gen. Physiol.", 1960, 43, 129). The analog between these conversions and those occurring in the human mind in the course of classifying and generalising in the process of visual perception is analyzed. V. Antonov (Translation of abstract)

SUB CODE: 06

Card 1/1 (a)

UDC 577.3

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29

Influence of iron salts upon the color and physico-chemical properties of gelatin. S. A. Kherwach. J. Applied Chem. (U. S. S. R.) 10, 671 (in French 673) (1937). The presence of  $\text{FeCl}_3$  in gelatin even in the amt of 10-15% caused a visible change in its color. The viscosity of gelatin changed but slightly upon addn. of  $\text{FeCl}_3$ , but its foam-formation ability increased. The surface tension of gelatin increased in the presence of  $\text{FeCl}_3$ , but there was no direct relation between the increase of the surface tension and the  $\text{FeCl}_3$  concn. Photographic emulsion properties of gelatin also vary markedly, increasing in the presence of  $\text{FeCl}_3$ . Five references.  
A. A. Podgorny

OPEN MATERIALS AREA

E.I.T.-SLA METALLURGICAL LITERATURE CLASSIFICATION

CR

## PROCESSES AND PROPERTIES OF

biochemical processes in the manufacture of gelatin.  
M. A. Khemka. *Microbiology* (U. S. S. R.) 6, 245-54  
(1937); *Akim. Referat. Zhur.* 1, No. 7, 42 (1938). In the  
first stage of the manufg. process (boiling) at pH of about 7 a  
considerable proteolytic activity of the bacteria is ob-  
served which does not stop even at pH = 11-12. Expts.  
with culture media showed that this activity is most pro-  
nounced at pH 8.0-8.5. Investigating the action of the  
enzyme systems of bacteria on the ovine protein the  
author concludes that the proteolytic system of bacteria  
is trypsin activated by chymotrypsin. The action of the bacteria  
on gelatin (which was under a prolonged heat-treatment)  
causes a decrease in the amino N, and a sharp increase of  
the ammonia N accompanied by a corresponding change in  
pH. Without the heat-treatment, the gelatin showed a  
greater resistance to the action of bacteria. The activity  
of the enzymes in the raw material influences the physico-  
chem. qualities of gelatin. The results of the investiga-  
tions can be utilized for the control of the tech. processes in  
gelatin manuf.

W. R. Henn

29

## ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

101 AND TWO OTHERS

The effect of alkali treatment of the raw material on the properties of gelatin. I. The effect of sugar on the color of gelatin. M. A. Khrenikh. *J. Applied Chem. U.S.S.R.* 11, 300-311 (in French 341) (1958). The femur of the cow in plates 4-6 mm. thick was treated with 10cc. of HCl (3 N) per g. of bone at 12° and 20°. After 24 hrs. the acid was poured out and fresh HCl was added; this process was continued for 10 hrs. The bone was preliminarily freed from flesh, cartilage and fat by boiling in water for 3-3.5 hrs., and extg. with Et<sub>2</sub>O for 23 days. The amt. of N-contg. substances removed from the bone during the demineralization process varied between 10 and 20%, depending on the temp. The ossein obtained was cut in small pieces, washed with tap water, placed in glass-stoppered bottles contg. 10 vol. of 0.1 N NaOH, and kept for 3, 6, 9 and 13 days. In the liquid from each bottle was found a substance of mucoid type. Heating 1% gelatin soln. contg. 1 g. of galactose per 100 cc. of soln. in a flask with a reflux condenser at 85-90° at  $\rho_{H_2O}$  5.6 or 6.0 for 3. This did not cause any change in the color of soln.; heating at  $\rho_{H_2O}$  3.8-5 for 1-1.5 hrs. produced a brown color as the result of the formation of colored products from the carbohydrate complex. Four references. A. A. Polgony

ALB SLA - METALLURGICAL LITERATURE CLASSIFICATION

021  
022-023  
024-025

*C1*

The colloidal chemical properties of thermolyzed gelatin and the potentiometric titration of the products of its acid decomposition. *J. Am. Chem. Soc.* (U. S. S. R.) 9, 1479-88 (1937). — Treatment of 1% gelatin soln. in an autoclave at 120° for 30 hrs. decompd. the gelatin to high-mol. compnd. (polypeptides) which resemble in their reactions the boiled protein. A decrease in viscosity of 5 and 10% gelatin solns. [this is attributed to the destruction of the structural viscosity of gelatin. The hydrolysis of gelatin to polypeptides had no effect on the change in viscosity of the soln. The chemic. solvation of gelatin increased in the thermolysis, which was accompanied by a partial destruction of the polypeptide linkage. The potentiometric titration of the products of thermolyzed (at 120°) gelatin soln. in 5% HCl or 3%  $HgSO_4$  disclosed

the formation of cyclic compds. In this case the potentiometric titration curves were practically the same for 1 and 2 hr. treatment. The hydrolysis of gelatin at 120° for 1 hr. completely destroyed the peptide linkage, whereas that at 120° even for 3 hrs. did not destroy the bluret compnd. An increase in the protective action of thermolyzed gelatin soln. pointed to the preservation of colloidal properties of gelatin even after 30 hrs. of autoclaving at 120°.

A. A. Pudgory

*Lab. Phys.-Chem., Natural Sci.-Res. Inst.-inv. Seagart, Leningrad*

AIA-11A METALLURGICAL LITERATURE CLASSIFICATION

The effect of alkali treatment of the raw material on the properties of gelatin. II. The effect of alkaline fractions on the photochemical characteristics of gelatin. M. A. Klyushnik and A. V. Kiselev. *J. Applied Chem. U.S.S.R.* 12, 201 (1959) [Russian]; *ibid.* 13, 132, 505 (1960). The increase of duration (to a certain limit) of alkali treatment of ovine increased the sensitivity, decreased the development factor ( $\gamma$ ) and changed the cloudiness of the gelatin. The gelatin obtained from untreated ovine had a slightly colored cloudiness. The prolonged (10-30 days) treatment of ovine promoted the release of the products which caused the appearance of colored cloudiness, but it was not sufficient for the removal of dichromate cloudiness in gelatin. The intensity of colored cloudiness in gelatin was decreased by washing out the ovine from the adsorbed products of the alkali treatment. Preliminary experiments disclosed that bacteria caused the appearance of colored cloudiness. A. A. Polgovskiy.

## AIA-SEA METALLURGICAL LITERATURE CLASSIFICATION

**APPROVED FOR RELEASE: 09/17/2001**

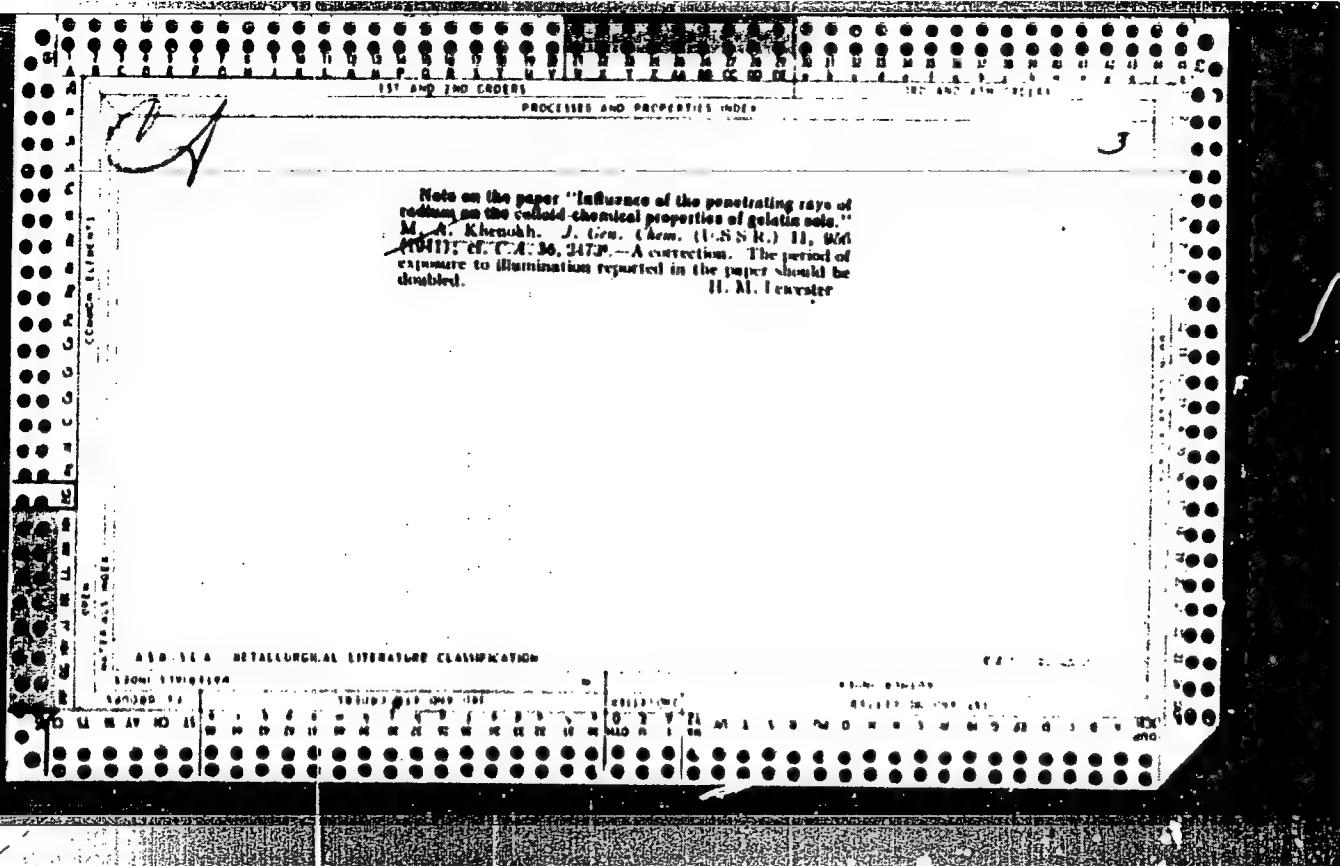
CIA-RDP86-00513R000721930010-8"

The effect of the penetrating radium rays on the colloid-chemical properties of gelatin sols. M. A. Khanuk'. J. Gen. Chem. (U. S. S. R.) 21, 770-780(1941).—Radium irradiation causes in 0.5% sols of the gelatin a lowering of the viscosity and the pH, while increasing its elect. cond. The destruction of the albumin due to irradiation by the same Ra source is greater in 0.5% sols than in 1% & 1.5%. An irreversible coagulation accompanied by the denat. action of the albumin takes place on irradiating gelatin & 1.5%. Solns of a gelatin subjected to thermolysis, because of the formation of low-mol. fractions, are more resistant to the coagulating effect of Ra rays than those of gelatin which was not exposed to heat. The disaggregating effect of Ra rays is accompanied by chem. processes, in which the

values of the main valencies, the macromols., and the great changes. The ability of gelatin to produce the bluet reaction after prolonged exposure to 2 g. of Ra and to show protective properties is an indication that the compds. formed from the macromols. in the degradation of the gelatin maintain a colloidal stage of dispersion. The amino groups, the peptide bond and the imino group are decomposed with the formation of NH<sub>2</sub> through the action of the penetrating Ra rays. An increase in the amt. of the ammonia N takes place in solns. of glycine on a prolonged exposure; after an exposure of 16 days ammonia N amounted to 62.8% of the N of the original amino acid. A. A. Borodil'.

## A10.1A METALLURGICAL LITERATURE CLASSIFICATION

SUBJ CAT					SUBJ CAT					SUBJ CAT										SUBJ CAT									
SUBJ CAT					SUBJ CAT					SUBJ CAT					SUBJ CAT					SUBJ CAT					SUBJ CAT				
1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10



131 AND 7 AND 8 YEARS

**PROCESSES AND PROPERTIES INDEX**

5

The influence of penetrating radium radiation on the colloid-chemical properties of starch sols. M. A. Khenchuk (Lenggut Inst. Nat. Sci., Leningrad). *J. Gen. Chem. (U.S.S.R.)*, 17, 1024-9 (1947) (in Russian). Sterile sols averaging 0.37% potato starch were irradiated through glass with 1000 mg. Ra as RaBr. Their relative viscosity decreased 46% in 10 days of irradiation, but the rate of decrease slackened sharply after that. The pH decreased from 6.0 to 3.0 in 20 days. The transparency rose from 33% to 86% in 10 days and had increased to 81% 10 days later. The reducing power increased almost linearly with time of irradiation over a period of 35 days. The addn. of I to an irradiated sol gave the brownish color characteristic of erythrodextrins. Irradiation is believed to rupture some of the principal valence bonds of the starch mol. and to promote oxidation of the decompn. products to acids.

Cyrus Feldman

## AIA-SEA METALLURGICAL LITERATURE CLASSIFICATION

CHARTER MEMBER

**APPROVED FOR RELEASE: 09/17/2001**

CIA-RDP86-00513R000721930010-8"

KHENO KH, M. A.

PA 3/50783

USER/Physics - Ultrasonics  
Chemistry - High-Molecular Com-

11 Sep 49

pounds

"Action of Ultrasonic Oscillations Upon High-Molecular Compounds," I. I. Zhukov, Corr Mem, Acad Sci USSR, M. A. Kheno KH, State Inst of Natural Sci Inst P. F. Lesgaft, 4 pp

"Dok Ak Nauk SSSR" Vol LXVIII, No 2

Tested electroconductivity, viscosity, and reducing power of agar (imported brand), starch and galactose (Merck preparations), and photogelatin (Lentil Grad Gelatin Factory) before and after exposure +

3/50783

USER/Physics - Ultrasonics (Contd) 11 Sep 49

ultrasonic oscillations generated by two quartz tubes and a quartz membrane. Submitted 8 July 49.

3/50783

34

C.A.

Cleavage of macromolecules of natural high-molecular substances under the action of  $\gamma$ -rays. M. A. Klenovskii (Lenglit. Nat. Sci. Inst., Leningrad). Zhar. Obshch. i Khim. (J. Gen. Chem.) 20, 1500-7 (1950).—Irradiations with  $\gamma$ -rays from RaBr<sub>2</sub> (filtered through 2 glass walls to eliminate most electronic emulsion) were performed in the dark under sterile conditions, with starch sols and aq. solns. of monosaccharides as test substances. Irradiation for 32 days led to a 46% drop of viscosity of the starch sol, a large increase of reducing power, change of 1 test through violet to light brown, and a drop of pH from 6.50 to 3.19. Indications are that org. acids were formed. Glucose soln. irradiated for 100 days showed a slight increase of CHO content, but pH dropped from 5.93 to 2.6, possibly as a result of chain scission and formation of low-mol. acids. Maltose, in 30 days, showed a 20% increase of CHO groups and a pH decline from 8.0 to 3.40. Exposure of 0.5% insulin soln. for 30 days gave a sharp rise of CHO groups and of

reducing power with simultaneous drop of pH from 5.51 to 3.80; fructose gave similar results. Aq. solns (0.1%) of agar and gum arabic also gave decline of viscosity, increase of reducing power, and decline of pH owing to formation of org. acids. Apparently the O bridges in the polysaccharides are cleaved and the fragments undergo oxidation cleavage to low-mol. acids.

G. M. Kinolapoff

CA

SA

Cleavage of macromolecules of natural high-molecular  
compounds under the influence of  $\gamma$ -rays. M. A. Khenokh  
(Lesgafit Nat. Sci. Inst., Leningrad). *J. Gen. Chem.*  
*U.S.S.R.* 20, 1021-24 (1950) (Engl. translation).--See *C.A.*  
45, 1033d. D. P. Langlois

KHENOKH, M. and Lozina-Lozinskiy, L.

"The Biological Action of High-Molecular Compounds Irradiated by Radium," Izv.  
Vestn. nauchn. in-ta im. P.I. Lebedeva, 24, pp 23-29, 1951.

KHENOKH, M. A.

USSR/Biology - Microorganisms

1 Jan 51

17823  
"Effect of Ultrasound on Yeast," R. S. Katsnel'son,  
M. A. Khenokh, State Nat Sci Inst imeni P. F.  
Lengpart

"Dok Ak Nauk SSSR" Vol LXXVI, No 1, pp 133-135

Action of ultrasound (425 kc at quartz plate) for  
1/2, 2, 4, or 5 hr on *Saccharomyces cerevisiae*  
in concn of 2, 4, 8, or 20% did not affect morphol-  
or viability of yeast, but improved its effective-  
ness in fermentation and ability to raise dough by  
15% (max improvement). Activity of catalase in  
yeast thus treated remains unchanged, while

USSR/Biology - Microorganisms (Contd)

17823  
1 Jan 51

proteolytic activity rises. Change of pH produced  
by treatment is not responsible for effect. According  
to R. A. Branopol'skaya, treatment of yeast with UV  
rays produces similar result and improves effective-  
ness by 20%.

17823

11A

Reaction of paramecia to some organic compounds subjected to action of ultrasound and ultraviolet light. L. K. Jolina-Lohauski and M. A. Khanolkh. Doklady Akad. Nauk S.S.R. 70, 817-21 (1951).—Actions of maltose, glucose, galactose, fructose, starch, sorbitol, agar, tannin, and glycine were subjected either to ultrasound (430 kilocycles) or ultraviolet light and paramecia specimens were then introduced. The results were lethal, in some cases instantaneously, although this could not be attributed solely to higher acidity of the solutes. The effect produced by the carbohydrate solutes, was felt even at a distance (discrete drops under cover glass in chambered slide). Starch gave no such effect until its pre-exposure to ultrasound was 10 hrs.; sorbitol was similar, while agar required 23-hrs. exposure. Sorbitol, maltose, and fructose develop this faculty best in light, and tannin in the dark. The results are caused by volatile decomposition products, among which is  $\text{CH}_4\text{O}$ , as well as  $\text{HCOOH}$  (in agar and tannin  $\text{CO}$  is a possible product).  
O. M. Konchalovskii

C.A.

II-A

Action of supersonic vibrations on solutions of gelatin and amino acids in the presence of air. M. A. Khenokh and R. M. Lapinskaya. *Doklady Akad. Nauk S.S.R.* 80, 921-4 (1951).—Irradiation of solns. of gelatin with supersonic waves of 428 kilohertz, 350-400 w., resulted in an irreversible fall of the viscosity  $\eta$  and a decrease of the pH; In a 0.8% soln.,  $\eta$  decreased from an original 2.44 to 1.47 and 1.31, resp., after 2 and 4 hrs., and to 1.04 after 7-8 hrs. exposure. Chem. changes were investigated in a 0.1% soln. of gelatin. The amt. of free NH<sub>3</sub> increases linearly with the length of exposure, and so do the amts. of NO<sub>2</sub><sup>-</sup> and of HCHO (followed up to 10 hrs.); the rates of formation increase in the order NO<sub>2</sub><sup>-</sup>, NH<sub>3</sub>, HCHO. The amt. of NO<sub>2</sub><sup>-</sup> increased in the initial stage, reaches a max. after about 1 hr., then decreases and finally falls to zero after 6 hrs. The protective action of the gelatin soln. on a dialyzed 0.2% Fe(OH)<sub>3</sub> hydrogel increases during the 1st hr. of the irradiation, reaches a max., then decreases and falls to zero after 4 hrs., although presence of macromols. is still detectable by pptn. with tannin and by the biuret reaction. In solns. of amino acids, supersonic irradiation liberates HCHO, at a rate increasing in the order glycine, alanine, leucine. The rate of production of NH<sub>3</sub> increases in the same order. From hippuric acid NH<sub>3</sub> is evolved more slowly than from glycine, and the soln. takes on a brown color. The amt. of NO<sub>2</sub><sup>-</sup> formed increases from glycine to alanine to leucine; in all these cases, the amt. of NO<sub>2</sub><sup>-</sup> reaches a max., then decreases slowly. The amts. of NO<sub>2</sub><sup>-</sup> produced increase with the length of the irradiation, but the rates of production of NO<sub>2</sub><sup>-</sup> increase from leucine to alanine to glycine. The above chem. changes are absent when air is excluded; thus, in a 0.02 M soln. of glycine no NH<sub>3</sub>, HCHO, or NO<sub>2</sub><sup>-</sup> were detected after 12-hrs. irradiation under 10<sup>-8</sup> mm. Hg. Consequently, the deamination of NH<sub>3</sub> groups and the splitting of C chains which produces HCHO are initiated by oxidative processes. N. Thon

Chemical Abst.  
Vol. 48 No. 4  
Feb. 25, 1954  
Electronic Phenomena and Spectra

*new (3)*  
*Lab Phys. Chem.*  
~~Oxidation of alcohols under the influence of supersonic vibrations. E. M. Lapinikaya and M. A. Khenokh [In: Vsesoyuzn. Nauchno-Issled. Inst. Mineralogii, Zhar. Osnichesk. Khim. 23, 1464-8 (1953).]—When 0.1-1.0% eq. MeOH solns. are subjected to 300-kilocycle ultrasound at about 40° the concn. of CH<sub>3</sub>O formed gradually increases with duration of exposure, the rate being generally increased by increase of concn. of MeOH in the original solns. In addn., HNO<sub>2</sub> and HNO<sub>3</sub> are formed, owing to oxidation of the dissolved air. The concn. of HNO<sub>3</sub> rises for about 0.5 hr., after which it begins to decline through oxidation to HNO<sub>2</sub>, the max. being about 0.2 mg./100 ml. The concn. of HNO<sub>2</sub>, however, steadily rises with time of exposure. The max. concn. of CH<sub>3</sub>O formed is about 16 mg./100 ml. when the initial MeOH concn. is about 10%; at other concns. the amt. of CH<sub>3</sub>O formed is very significantly lower. In 3-hr. exposures the following concns. of aldehydes, NO<sub>2</sub>, and NO<sub>3</sub> ions were produced from 0.02M MeOH, EtOH, PrOH, and BuOH solns.: MeOH 5.8 mg./100 ml., trace, 3.06 mg./100 ml.; EtOH, 7.08, trace, 0.4; PrOH 16.6, none, 0.3; BuOH 19.4, none, 0.14. When glycine is added to aq. MeOH (0.1%), the oxidation of MeOH under ultrasound is retarded, the effect being parallel to increase of glycine concn. (to about 0.04 molar). When lactose or glucose is added to aq. MeOH, a similar effect is observed and the amt. of CH<sub>3</sub>O formed is reduced. When dil. CH<sub>3</sub>O solns. are subjected to prolonged ultrasound exposures, oxidation to HCO<sub>2</sub>H occurs, which is progressive with time; glycine retards this oxidation as well.~~

O. M. Kosolapov

MF  
7-13-59

"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721930010-8

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721930010-8"

Authors : Gerasimov, V. N.

Title : Effect of ultra-sound on carbohydrates

Periodical :

Abstract : The effect of ultrasound on the solubility of starch and cellulose has been studied by spectrophotometry. The results show that the solubility of starch and cellulose increases with increasing intensity of ultrasound. The increase in solubility is proportional to the square root of the intensity of ultrasound. The increase in solubility is proportional to the square root of the intensity of ultrasound.

KHENOKH, M.A.

Effect of ultrasound on carbohydrate solutions. Zhur.ob.khim.  
25 no.5:928-932 My'55. (MIRA 8:10)

1. Gosudarstvennyy yestestvenno-nauchnyy institut imeni P.F.Les-  
gafta  
(Carbohydrate) (Ultrasonics)

Periodical Dokl. Akad. SSSR 102/5, 993-996, Jun 11, 1955

Abstract Using  $\gamma$ -<sup>60</sup>Co compound in the form of a salt effect on starch was studied.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000721930010  
USSR, General Biology - Physical and Chemical Biology. B-1

Abs Jour : Ref Zhur - Biol., No 8, 1958, 33282

Author : Khenokh, M.A.

Inst : -

Title : Effect of  $\gamma$ -Irradiation by Radioactive Cobalt ( $Co^{60}$ ) on Carbohydrates.  
(Dействие  $\gamma$ -излучения радиоактивного кобальта ( $Co^{60}$ ) на углеводы).

Orig Pub : Dokl. AN SSSR, 1955, 104, No 5, 746-749

Abstract : 0.25% solutions of starch and inulin and 0.14 M solutions of glucose, fructose, maltose, sucrose, and raffinose were irradiated. According to spectral analysis data new compounds are formed from macromolecules by effects of  $\gamma$ -rays on solutions of starch and inulin; when the dose is increased these are further decomposed, evidently, with formation of dioxacetone (absorption maximum at 265 m $\mu$ ). As the dose was increased,

COUNTRY : USSR  
CATEGORY :

ABS. JOUR. : RZhBiol., No. 1959, No.

AUTHOR :  
INST. :  
TITLE :

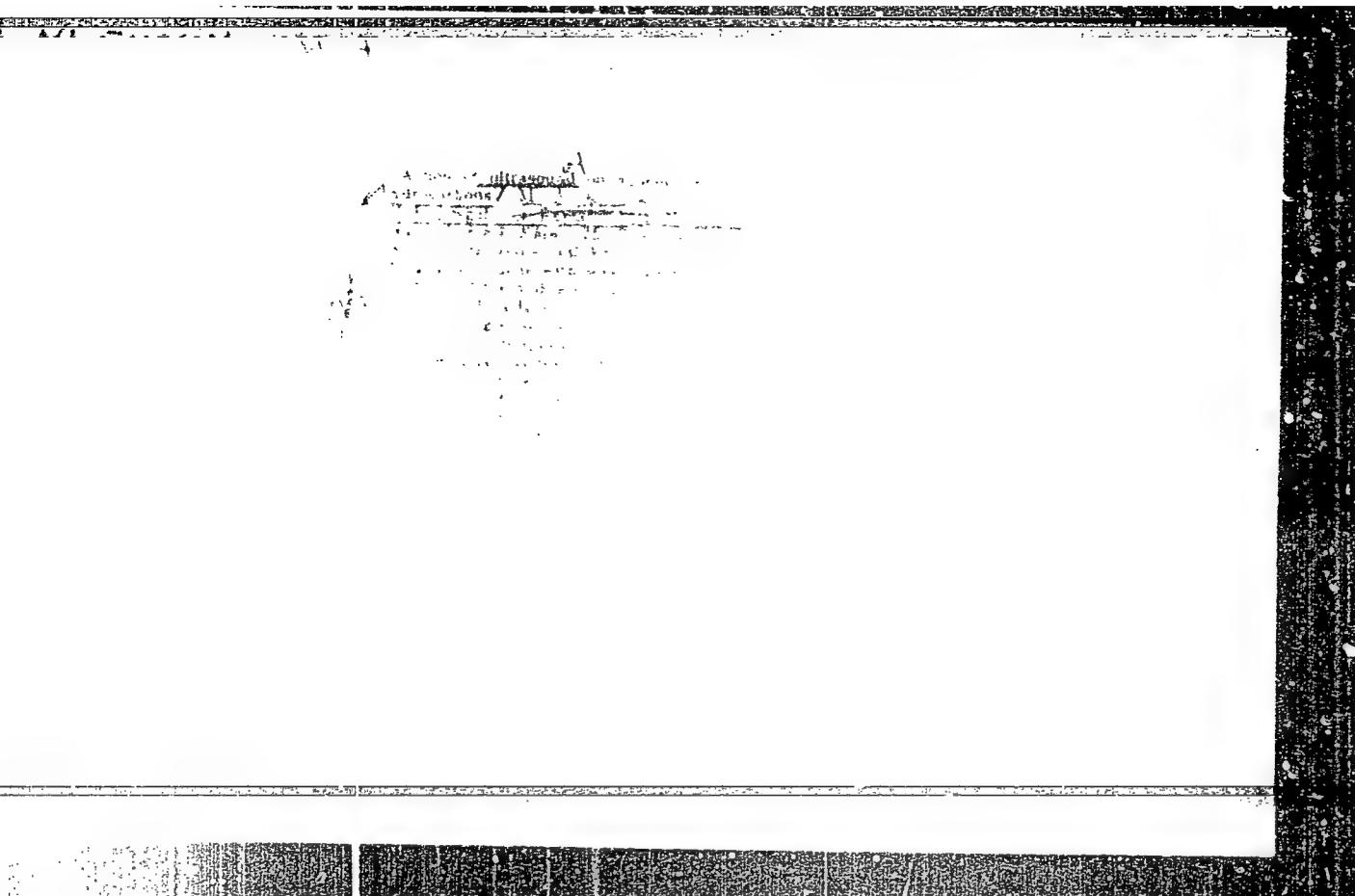
ORIG. PUB. :

ABSTRACT : If ultrasonic sound lasts for 5-30 sec, up 60 percent of oocysts become destroyed, and when it lasts for 1-30 min, 95-99 percent, rupture of membranes begins in the micropy region where their thickness is smallest. sensitivity of oocysts which are suspended in distilled water is greater than of oocysts which form a suspension with excrements. C particles probably impede the US' mechanic influence upon oocysts. If a 60-sec last sound was used, 50 percent of oocysts whi

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"APPROVED FOR RELEASE: 09/17/2001

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000721930010-8"

KHENOKH, M. A. and LAFINSKAYA, Ye. M.

"Action of  $\text{Co}^{60}$   $\gamma$ -Radiation on Proteins and Amino Acids,"

paper presented at the 1st All-Union Conference on Radiation Chemistry,  
25 March - 2 April 1957.

P. F. Lesgart State Natural Science Inst, Leningrad

Abst. - E-3,086,921,

## AUTHORS:

Khenokh, M.      Lapinskaya, Ye. M.      79-22-3-31/61

## TITLE:

The Effect of the  $\gamma$ -Radiation of Radioactive Cobalt ( $Co^{60}$ )  
on the Aqueous Solutions of Aromatic Hydrocarbons  
(Deystviye  $\gamma$ -izlucheniya radioaktivnogo kobal' ta ( $Co^{60}$ ) na  
vodnyye rastvory aromaticeskikh uglevodorodov)

## PERIODICAL:

Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 3,  
pp. 698-703 (USSR)

## ABSTRACT:

Based on their own works on the investigation of the effect of ionizing radiation (refs. 10, 11) and of ultrasound on organic compounds the authors exposed the saturated aqueous solutions of benzene, toluene and phenol to the action of  $\gamma$ -radiation of  $Co^{60}$  ( $\sim 2$  C) at  $15 \pm 2^{\circ}\text{C}$ . The water taken for this had been distilled three times and the experiments were repeated 3-5 times. It was shown that under the action of  $\gamma$ -radiation an hydroxilation of the six-membered nucleus takes place in benzene solutions, the phenol yield being 1,31 of the molecule/100 eV, and at the formed formaldehyde 0,07 of the molecule /100 eV-. After the irradiation an absorption with a maximum at  $348 \text{ m}\mu$  was formed within the

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The Effect of the  $\gamma$ -Radiation of Radioactive Cobalt ( $Co^{60}$ ) 79-28-3-31/61  
on the Aqueous Solutions of Aromatic Hydrocarbons

spectrum of benzene, within the range of from 305-380 m $\mu$ . In the toluene solutions the radiation effect was accompanied by the formation of a phenol compound with a yield of 0.56 of the molecule/100 eV, and of formaldehyde, with a yield of 0.16 of the molecule/100 eV. The effect of the  $\gamma$ -radiation did not show any changes within the spectrum of toluene within 230-280 m $\mu$ ; after the exposure, of from 320-380 m $\mu$  appeared with a maximum at 353-354 m $\mu$ . An effect of the  $\gamma$ -radiation on the absorption spectrum of the phenol solution could not be found. The absorption spectra of the benzene- and toluene solutions which had been treated with the Fenton activator (Fentona) differ from the spectra of the irradiated solutions. The differences in absorption bands show in the benzene solution within the range of 305-308 m $\mu$ , in the toluene solution, however, within the whole range under investigation (230-380 m $\mu$ ). There are 6 figures and 23 references, 11 of which are Soviet

Card 2/3

The Effect of the  $\gamma$ -Radiation of Radioactive Cobalt ( $Co^{60}$ ) 79-28-3-31/61  
on the Aqueous Solutions of Aromatic Hydrocarbons

ASSOCIATION: Gosudarstvennyy yestestvenno-nauchnyy institut imeni  
P. F. Lesgafta ( State Natural Science  
Institute imeni P. F. Lesgarta)

SUBMITTED: December 1, 1956

Card 3/3

AUTHORS:

Khenokh, M. A., Lapinskaya, Ye. M.

79-28-3-32/61

TITLE:

The Change of Proteins and Aminoacids Under the Action of Ultrasonic Oscillations (Izmeneniye belkov i aminokislot pod vliyaniyem ul'trazvukovykh kolebaniy)

PERIODICAL:

Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 3, pp. 704-710  
(USSR)

ABSTRACT:

The present report mentions the experimental results on the effect of sound on proteins and aromatic as well as on aliphatic amino acids. This is a continuation of the investigations carried out by the authors concerning the effect of ultrasound and nuclear radiations on the molecular compounds and their elementary members.

From  $2 \cdot 10^{-2}$  -  $2 \cdot 10^{-3}$  molar solutions amounting to 25 ml, of amino-acids and 0.5 % solutions of protein were subjected to the action of ultrasound with a frequency of 435 kcycles at 38-40°C. The effect of ultrasonic oscillations on the solutions of protein, casein, gelatin of the aliphatic and aromatic aminoacids was investigated. It showed that under the action of sound an absorption increase of ultra-

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The Change of Proteins and Aminoacids Under the Action of Ultrasonic Oscillations 79-28-3-32/61

violet light within the range of from 230-300 m $\mu$ , takes place in the protein solutions without the formation of new absorption bands. In the gelatin solutions the sound effect caused an immediate change of the viscosity, a decrease of pH % and a decomposition of the molecules under the formation of ammonia and formaldehyde. The effect of ultrasound destroys the molecules. It was shown that the longer the chain of the aliphatic aminoacids the greater is the decomposition under the action of sound. The effect of ultrasound brings about the decomposition of the imidazol ring in hystidine, and in hippuric acid it leads to a rupture in the binding CO-NH<sub>2</sub>, the amino acid becoming free. The oxidation effect of ultrasound causes the destruction of cystein under the formation of cystine which, however, with further sound effect also decomposes.

There are 9 figures, 1 table, and 17 references, 14 of which are Soviet.

Card 2/3

The Change of Proteins and Aminoacids Under the Action of 79-28 -3-32/61  
Ultrasonic Oscillations

ASSOCIATION: Gosudarstvennyy yestestvenno-nauchnyy institut imeni  
P. F. Lesgafta (State Natural Science Institute  
imeni P.F. Lesgaft)

SUBMITTED: February 7, 1957

Card 3/3

KHENOKH, M.A.

AUTHORS: Getsova, A. B., Lapinskaya, Ye. M., Khenokh, M. A. 20-1-22/58

TITLE: The Development of Eggs in Antheraea Pernyi Under the Influence  
of Ultrasonic Treatment (Vliyanie ul'trazvuka na razvitiye  
yaits dubovogo shelkopyryada).

PERIODICAL: Doklady AN SSSR 1958, Vol. 118, Nr 1, pp. 78-79 (USSR)

ABSTRACT: According to the references in literature ultrasonic oscillations can influence the development of the seeds of various plants as well as stimulate the development of various animals. In this connection the authors tried to determine if ultrasound can be used for the acceleration of the development of the eggs of antheraea pernyi, which would be of practical importance. The sound treatment was carried out at various stages of development of the embryo and the duration of exposure to this treatment was also different. As experimental material served the eggs of antheraea pernyi of the first generation of spring 1956. The eggs were exposed to sound treatment in a test glass with distilled water at temperatures of from 13 - 15°. Also the treatment of the control eggs is described. From the time of hatching as well as from the number of surviving caterpillars the influence of the ultrasonic oscillations on the velocity of development as well as on the rate of surviving

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APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721930010

The Development of Eggs in Antheraea Pernyi Under the Influence 20-1-22/58  
of Ultrasonic Treatment.

embryos was determined. The ultrasonic oscillations were produced by means of an ultrasound generator (300 - 400 Watt, 125 kc). The influence of the duration of exposure on the velocity of development of embryos is mentioned in a table. Especially in the begin of the development (on the first day) the ultrasonic oscillations have a stimulating effect. Most stimulating is a from 2 - 3 minutes lasting exposure. The exposure at the begin of the development shortens the fortnight-long development of embryos by 3 days, i. e. 21 %. With an exposure of 60 and 90 minutes the stimulating effect of ultrasound decreases to 8,3 %. Also during the development of the embryonal band ultrasound has a stimulating effect. But an exposure carried out during blastokinesis leads to the death of the embryo. An exposure of the eggs of from 1 - 30 minutes has the most stimulating effect. Therefore ultrasonic oscillations can accelerate the development of the eggs of the antheraea pernyi. There are 16 references, 11 of which are Slavic.

Card 2/3

KHENOKH, M. A., Doc. Bio Sci, "EFFECT OF IONIZING RADIATION  
AND ULTRASONIC OSCILLATIONS <sup>upon</sup> AQUEOUS SOLUTIONS OF ORGANIC  
MATTER." <sup>USSR,</sup> MOSCOW-LEMINRAD, 1960. (ACAD SCI INST BIOCHEM IM  
A. N. BAKH. INST CYTOL). (KL, 12-61, 203).

-64-

KHENOKH, M.A.; KUZICHEVA, Y.S.A.; AVER'YANOV, S.V.; YEVDOKIMOV, V.F.

Action of ultrasonic waves and  $\gamma$ -rays of  $Co^{60}$  on polyvinyl alcohol solutions. Zhur. VKHO 5 no.1:105-106 '60. (MIRA 14:4)

1. Institut evolyutsionnoy fiziologii imeni Sechenova AN SSSR.  
(Vinyl alcohol) (Ultrasonic waves)  
(Gamma rays)

S/020/60/135/002/035/036  
B016/B052

AUTHORS: Khenokh, M. A., Kuzicheva, Ye. A., and Yevdokimov, V. F.

TITLE: The Action of Gamma Rays of Co<sup>60</sup> on Dry Carbohydrates

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 2,  
pp. 471 - 474

TEXT: The authors report on their experiments concerning the action of high gamma doses (Co<sup>60</sup>, activity of ~1440 g-equ. radium) on dry sugars and polysaccharides. Dry and air-dried glucose, fructose, saccharose, raffinose, mannite, and starch were exposed to radiation in a vacuum. The resulting products were examined by the analytical methods described in Ref.1. The action of  $\gamma$ -rays was revealed by the strong smell of the above carbohydrates, and by the fact that they turned increasingly brown as the dose was increased. The analysis of the products revealed that under the action of  $\gamma$ -rays of Co<sup>60</sup>, dry carbohydrates undergo chemical transformations which are closely related to those of aqueous radiolysis

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The Action of Gamma Rays of Co<sup>60</sup> on Dry Carbohydrates

S/020/60/135/002/035/036  
B016/B052

and other compounds when reacting with water. In solid carbohydrates exposed to radiation, these radicals form intermediary stages of the radiolytic decay of molecules. However, it is difficult to detect these radicals during aqueous radiolysis, since the addition of the elements of water takes place rapidly. It is hoped that this work will contribute to a better understanding of the chemical destruction of carbohydrates by ionizing radiation. They thank Professor I. Ya. Poddubnyy who made the experiments possible. V. V. Antuf'yev assisted in this work. There are 3 figures and 6 references: 3 Soviet and 1 US.

ASSOCIATION: Institut tsitologii Akademii nauk SSSR (Institute of Cytology of the Academy of Sciences USSR)

PRESENTED: June 2, 1960, by A. F. Ioffe, Academician

SUBMITTED: May 30, 1960

Card 3/3

VOTINOV, M.P.; LAPINSKAYA, Ye.M.; KHENOKH, M.A.; YEVDOKIMOV, V.F.;  
ANTUF'YEV, V.V.; STAFYEYEV, A.V.

Electron paramagnetic resonance spectra of hippuric acid irradiated  
by gamma rays of Co<sup>60</sup>. Radiobiologia 1 no.1:149-150 '61.

(MIRA 14:7)

1. Politekhnicheskiy institut im. M.I.Kalinina i Institut tsitologii  
AN SSSR, Leningrad.

(PARAMAGNETIC RESONANCE AND RELAXATION)

(HIPPURIC ACID)

(GAMMA RAYS—PHYSIOLOGICAL EFFECT)

LAPINSKAYA, Ye.M.; KHENOKH, M.A.; YEVDOKIMOV, V.F.

Radiochemical transformation pf phenylalanine. Radiobiologija 1  
no.5:694-700 '61. (MIRA 14:11)

1. Institut tsitologii AN SSSR, Leningrad.  
(ALANINE) (RADIOCHEMISTRY)

43237  
S/844/62/000/000/057/129  
D204/D307

AUTHORS: Votinov, M. P., Khenokh, N. A., Kuzicheva, Ye.A, Yevdokimov, V. F. and Antuf'yev, V. V.

TITLE: The EPR spectra of  $\gamma$  irradiated solid carbohydrates

SOURCE: Trudy II vsesoyuznogo soveshchaniya po radiatsionnoy khimi. Ed. by L. S. Poiak. Moscow, Izd-vo AN SSSR, 1962, 335-338

TEXT: The EPR spectra of some dry, crystalline, mono-, di-, and trisaccharides and other high-molecular weight carbohydrates were studied in an effort to determine the radiochemical changes taking place. The spectra of (1) glucose, (2) fructose, (3) saccharose, (4) galactose, (5) raffinose, (6) mannite, (7) cellulose, and (8) cellobiose are illustrated, described and discussed. Thus e.g. (1) two types of radicals were found, one of which corresponded to a fission of a C-H bond; (2) evidence was obtained of interaction between an unpaired electron and 3 equivalent protons - the radical present was a secondary one; (3) the radicals formed by

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3

S/844/62/000/000/057/129  
D204/D307

The EPR spectra ...

the fission of a 1,2-glucoside bond and by the splitting off of a H from a C; (4) the spectrum became symmetrical on storage in air at room temperature; (5) two types of radicals were present, formed by the fission of 1,2- and 6,1-glucoside bonds and by the splitting off of H's bonded directly to O-atoms; (6) an interaction was evident between an unpaired electron with 3 nonequivalent protons; (7) two types of radicals were detected, one of which was formed by a fission of a 1,4-bond; (8) two radicals were present, one being secondary. No EPR signal was detected from  $\gamma$  irradiated starch. The concentrations of radicals and the EPR spectra remained essentially unchanged over more than 6 months, at room temperature; the radicals disappeared when the carbohydrates were melted. The intensity of the EPR signals increased, slower than linearly, with increasing doses of irradiation. It is concluded that information concerning the radiochemical changes may be obtained by the EPR method. There are 2 figures.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I.  
Kalinina (Leningrad Polytechnical Institute im. M.I.

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The EPR spectra ...

S/844/62/000/000/057/129  
D204/D307

Kalinin); Institut tsitologii AN SSSR (Institute of Cytology, AS USSR); Institut Vysokomelekulyarnykh soyodineniy AN SSSR (Institute of High Molecular Weight Compounds, AS USSR)

Card 3/3

S/844/62/000/000/070/129  
D204/D307

AUTHORS: Lapinskaya, Ya. M., Khenokh, M. A., Votinov, M. P., Yevdokimov, V. F. and Antuf'yev, V. V.

TITLE: The action of  $\gamma$  radiation of  $\text{Co}^{60}$  on solid hippuric acid

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimi. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 403-408

TEXT: The effects of  $\gamma$  radiation on hippuric acid, benzoic acid, and glycine were studied in the presence of air.  $\text{PhCOOH}$  gave rise to  $\text{PhCOO}^\cdot$  only, and glycine was radiolyzed to  $\text{NH}_3$  and  $\text{CH}_2\text{O}$ , the extent of decomposition increasing with increasing dose of irradiation. Hippuric acid itself turned pink on exposure to  $\gamma$  rays, but the color disappeared on recrystallization or on heating to  $130^\circ\text{C}$ . The physical properties of hippuric acid remained unchanged after irradiation. The EPR spectrum showed 5 lines which corresponded to a H interacting with the N-nucleus and two other protons. The intensity of the lines rose with increasing dose. On heating the irradiated

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The action of ...

S/844/62/000/000/070/129  
D204/D507

ted acid to 128°C one line of the EPR spectrum was seen to disappear; at 180°C only the central doublet remained, and decomposition set in at 210°C. The  $\gamma$  rays ionize and excite the molecules of the acid, which subsequently break up into stable free radicals. Thus the presence of the aromatic ring gives stability to hippuric acid w.r.t.  $\gamma$  radiation. There are 4 figures.

ASSOCIATION: Institut tsitologii AN SSSR; Leningradskiy politekhnicheskiy institut im. M. I. Kalinina (Institute of Cytology AS USSR; Leningrad Polytechnic Institute im. M. I. Kalinin)

Card 2/2

43238  
S/844/62/000/000/071/129  
D204/D307

AUTHORS: Khenokh, M. A., Kuzicheva, Ye. A. and Yevdokimov, V. F.

TITLE: The action of ionizing radiation on solid carbohydrates

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 409-414

TEXT: The influence of  $\gamma$  oxidation on solid glucose, galactose, fructose, sucrose, lactose, raffinose, mannite and starch was investigated.  $\gamma$  rays ionize and excite the carbohydrate molecules, which split into stable free radicals. The monosaccharides decompose to give HCHO and other compounds, but no new reducing sugars are formed. Sucrose forms fructose, HCHO and dihydroxyacetone but lactose gives the monosaccharide only, with high radiation doses. Hence the 4,1-bond is more stable to  $\gamma$  radiation than the 2,1-bond. In raffinose the  $\gamma$  rays break the 1,2-bond, liberate fructose and form HCHO and a compound containing a chromatic group. Mannite decomposes to give HCHO, dihydroxyacetone, an organic acid and fruc-

Card 1/2

S/844/62/000/000/071/129  
D204/D307

The action of ...

tose, while starch forms a reducing compound,  $\text{HCHO}$ , and an organic acid but no glucose or maltose. Conductometric titrations of 1% solutions of the irradiated saccharides showed that the amount of NaOH required for neutralization decreased in the order starch > glucose > sucrose > mannite > raffinose. The acidity of any one solution is greater if the corresponding carbohydrate was irradiated in  $\text{O}_2$  rather than in  $\text{N}_2$ . The radiochemical changes in solid carbohydrates were similar to those observed in the corresponding aqueous solutions. There are 5 figures.

ASSOCIATION: Institut tsitologii AN SSSR (Institute of Cytology  
AS USSR)

Card 2/2

KUZICHEVA, Ye. A.; KHENOKH, M. A.

Effect of the gamma rays of  $\text{Co}^{60}$  on aqueous solutions of  
mannitol. Zhur. ob. khim. 32 no.12:4070-4073 D '62.  
(MIRA 16:1)

1. Institut tsitologii AN SSSR.

(Mannitol) (Gamma rays) (Cobalt—Isotopes)

ACCESSION NR: AR4028324

S/0299/64/000/005/R016/R017

SOURCE: Referativnyy zhurnal. Biologiya, Abs. 3R102

AUTHOR: Khenokh, M. A.; Pinayev, G. P.; Kovalova, Ye. A.

TITLE: (3R102) The effect of low temperatures (cryolysis) and ultrasound on solutions of actomyosin

CITED SOURCE: Sb. rabot. In-t tsitol. AN SSSR, no. 4, 1963, 6-13

TOPIC TAGS: actomyosin, freezing, ultrasound, cryolysis, actomyosin denaturation

ABSTRACT: Deep freezing of actomyosin solutions (-78°C) caused denaturation dependent on the duration of exposure to the frozen state. The intrinsic viscosity (?) increased from 0.6-0.7 to 2.0. On continued cryolysis (45, 70, 94 hours), the viscosity showed no further change. Although deep freezing caused marked fluctuations in the ATPase activity of actomyosin, the activity was still maintained after prolonged freezing, indicating that the active center of actomyosin is stable to low temperatures. Low temperatures failed to increase the number of titratable SH groups significantly. Ultrasonic treatment (300 cps) produced a decrease in the intrinsic viscosity, an irreversible decrease in ATPase activity, and a decrease in the content of SH groups. M. Kalamkarova.

Card 1/1 DATE ACQ: 27Apr64

SUB CODE: LS

ENCL: 00

ACCESSION NR: AP4034568

8/0079/64/034/004/1329/1334

AUTHOR: Kuzicheva, Ye. A.; Khenokh, M. A.

TITLE: Effect of ionizing radiation on solid glycogen

SOURCE: Zhurnal obshchey khimii, v. 34, no. 4, 1964, 1329-1334

TOPIC TAGS: glycogen, ionizing radiation, gamma irradiation, viscosity, molecular weight, IR spectra, oxidation, decomposition product, dihydroxyacetone, formaldehyde, carbonyl compound, carboxyl compound, glucose

ABSTRACT: The effect of ionizing radiation of cobalt-60 on solid glycogen was examined. On irradiation the characteristic viscosity (molecular weight) of the glycogen was reduced: with  $106.8 \times 10^6$  rads, viscosity was reduced 56%; with  $210.4 \times 10^6$  rads dosage viscosity did not decrease further. The optical density of the colored iodine complex of glycogen drops rapidly with increasing irradiation. Gamma-irradiation of glycogen in the solid state splits the macromolecule at the  $\alpha -1,4$  and  $\alpha -1,6$  bond. IR spectra indicated carbonyl compounds,  $H_2CO$  and carboxyl compounds are formed by radiation chemical transformation of glycogen, with the carbonyl content increasing more and the amount of formaldehyde being less than

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ACCESSION NR: AP4034568

proportional to irradiation dosage, indicating decomposition of H<sub>2</sub>CO at higher energies of activation. The radiation chemical transformation is accelerated by oxidation leading to the formation of dihydroxyacetone in addition to the other aforementioned compounds. No glucose was found in the decomposition products of glycogen. Orig. art. has: 5 figures

ASSOCIATION: Institut tsitologii Akademii nauk SSSR (Institute of Cytology  
Academy of Sciences, SSSR)

SUBMITTED: 16Jan63

ENCL: 00

SUB CODE: OC, NP

NO REV Sov: 009

OTHER: 007

Card 2/2